

SUPPORT FOR THE AMENDMENT

Support for claim 22 is found in claim 1 as originally presented on page 8, lines 8-10 and examples 1, 3 and 5-8 in Table 2 on page 18 of the specification.

Support for claim 23 is found on page 5, lines 6-9 of the specification. Disclosure of the broad range of 5-30 wt. % and sub ranges of 7 to 23 wt. % and 10 to 20 wt. % would convince one of ordinary skill in the art that applicants were in possession of the range of 7-20 wt.%. Support for claim 24 is found on page 8, lines 11-17 of the specification. Disclosure of the broad range of 0.02 to 5 wt. % along with the sub ranges of 0.05 to 1 wt. % and 0.1 to 0.3 wt. % would convince one of ordinary skill in the art that applicants were in possession of the range of 0.1 to 1.0 wt. %. No new matter would be added to this application by entry of this amendment.

Upon entry of this amendment, claims 22-24 will now be active in this application.

### REQUEST FOR RECONSIDERATION

The claimed invention is directed to a hair cleansing composition comprising an alkyl ether sulfate surfactant comprising 30-45 wt.% of the sulfate of formula I wherein  $n=0$ , 18-27 wt.% of the sulfate wherein  $n=1$ , and 10-20 wt.% of the sulfate wherein  $n=2$ , the balance wherein  $n$  is 3 or greater and the sum of sulfates wherein  $n=0-2$  is 70 wt.% or greater and a cationic polymer selected from the group consisting of cationic guar gum and cationic hydroxyethyl cellulose at a diluted pH of from 3 to 4.5. Applicants have discovered that such a distribution of alkyl ether sulfate surfactants and cationic polymer at an acidic pH of 3 to 4.5 provides for good foaming properties in a hair cleansing composition. Such a hair cleansing composition is nowhere disclosed or suggested in the cited references of record.

Applicants wish to thank examiner Channavajjala for the helpful and courteous discussions held with their U.S. representative on October 28, 2010 and February 16, 2011. During the first discussion, applicants' U.S. representative argued the evidence of foaming from the combination of the claimed sulfated surfactant with a silicone compound in terms of foaming and performance and discussed presentation of evidence in support of same. During the discussion of February 16, 2011, applicants' U.S. representative proposed new claims directed to the combination of sulfate with cationic polymer at an acidic pH, the art recognized difficulties in foaming performance observed at an acidic pH as well as applicants' evidence of an enhancement in foaming performance from the combination of sulfate surfactant and cationic polymer at an acidic pH. The following is intended to expand upon the discussions with the examiner.

Interest in acidic cleansing compositions has increased based on observed enhancements in hair conditioning and reduced stress on dyed hair observed with acidic pH compositions. However, in general, foam quality of ordinary sulfate surfactants is decreased at acidic pHs of 5 and below. Foams will typically become fragile and are easily broken at acidic pHs. Bezdenzhnykh et al. *Russian Journal of Applied Chemistry*, 2010, vol. 83, pp 1717-1724 (attached) describes on page 1718 that maximum foaming of shampoo compositions is achieved a close to neutral pH. In paragraph [0003] of JP 2003-252733, foaming difficulties at an acidic pH are reported. JP 05-221835, in paragraph [0002] describes difficulties in “whippability” at acidic pH. Thus, improvements in the foam quality of acidic cleansing compositions are sought.

The claimed invention addresses this problem by providing an aqueous hair cleansing composition comprising a sulfated surfactant having a specified distribution of ethoxylation, specific cationic polymer at an acidic pH of from 3 to 4.5. While applicants have discovered the claimed sulfated surfactants to provide improved foam quality at acidic pHs, they have also discovered the combination of sulfated surfactant with specific cationic polymers to provide for an excellent foam quality and hair conditioning performance at an acidic pH.

As evidence of the formation of excellent foam quality from the combination of sulfated surfactant, cationic polymer at an acidic pH, applicants have conducted additional experiments comparing the foaming quality of different sulfated composition, with and without the claimed cationic polymer and within and outside of the claimed pH range. For the examiner’s convenience a portion of the data is reproduced below:

		Additional Example 1(a)	Additional Example 1(b)	Additional Comparative Example 1(a)	Additional Comparative Example 1(b)	Additional Comparative Example 2(b)	Additional Comparative Example 4
(A)	STANDAPOL ES-1 (Claimed Sulfate represented by the formula (1))	7.5	7.5	7.5	7.5	7.5	7.5
	Cocamidopropyl betaine	6.5	6.5	6.5	6.5	6.5	6.5
	Cocamidopropyl Amine Oxide	3.0	3.0	3.0	3.0	3.0	3.0
	Cocamido DEA	1.5	1.5	1.5	1.5	1.5	1.5
	PEG-7 Glyceryl Cocoate	2.0	2.0	2.0	2.0	2.0	2.0
	fragrance,colorant,preservative	q.s.	q.s.	q.s.	q.s.	q.s.	q.s.
(B)	Cationic hydroxyethyl cellulose	0.5	0.5	0.5	0.5	-	-
	Cationic guar gum	0.5	0.5	0.5	0.5	-	-
	POLYQUART H81(*)		2.0	-	2.0	2.0	2.0
	Purified water	Balance	Balance	Balance	Balance	Balance	Balance
	Citric Acid (pH adjuster)	q.s.	q.s.	q.s.	q.s.	q.s.	q.s.
	pH	4.5	4.5	6.0	6.0	4.5	6.0
	Foaming Speed (measured value)	108s	113s	116s	114s	125s	131s
	Lubricity of Foam	20	19	20	20	13	13

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	Luster	20	19	15	14	7	7
	Manageability	20	20	15	15	6	7
	Receptivity of smooth feel when the hair is rinsed	19	19	15	17	5	5
	Smooth feel after the hair is dried	19	18	14	14	5	5
	Quality of foam	19	16	19	15	8	8

Additional example 1(a) and Additional Comparative example 1(a) contain the same components but differ in terms of the pH. Each composition contains the claimed sulfated surfactant and cationic polymer. Additional example 1(a) demonstrated a faster foaming speed (108 s v. 116 s), and was judged to possess a greater foam luster, greater hair manageability, a greater receptivity of a smooth feel when the hair is rinsed, and a smoother feed after the hair is dried.

Additional example 1(b) and Additional comparative example 1(b) contain the same components but differ in terms of the pH. These examples further contain Polyquart H81, a PEG-15 fatty acid polyamide similar to Polyquart M as used in the example in Frick. Additional example 1(a) demonstrated comparable foaming speed (113 s v. 114 s), but was judged to possess a greater foam luster, greater hair manageability, a greater receptivity of a smooth feel when the hair is rinsed, and a smoother feed after the hair is dried.

Thus, additional examples 1(a) and 1(b) and additional comparative examples 1(a) and (b) demonstrate enhancements in foam quality as a result of the claimed combination of sulfated surfactant, cationic polymer at the claimed acidic pH.

As further evidence of the effect resulting from the combination of sulfated surfactant, cationic polymer and pH, additional comparative examples 2(b) and 4 are provided. Additional comparative example 2(b) evaluated foaming quality for a composition containing the claimed sulfated surfactant within the claimed pH range in the absence of the claimed cationic polymer. Additional comparative example 4 is similar to the example of Flick in so far as there is no claimed cationic polymer but the pH is at 6 as disclosed. In both cases the foaming speed was slower, the foam quality was poorer and the hair conditioning performance was poorer than for the claimed composition.

Thus, through the combination of sulfated surfactant and cationic polymer applicants are able to obtain high quality foam and hair conditioning at an acidic pH.

The rejections of claims 1-3, 5-16 and 18-21 under 35 U.S.C. §103(a) over Flick in view of Bartz 5, 417,776 as evidenced by the Cognis Brief submitted in EPO and Takamura et al. U.S. 5,035,832 or in the alternative under 35 U.S.C. §103(a) over the combination of Flick and Takamura et al. is respectfully traversed.

None of the cited art of record discloses or suggests the claim combination of sulfated surfactant, cationic polymer and acidic pH. Accordingly, the claimed invention is not rendered obvious by this combination of references. Withdrawal of the rejection under 35 U.S.C. 103(a) is respectfully requested.

Applicants submit this application is now in condition for allowance and early notification of such action is earnestly solicited.

Respectfully submitted,

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